Building Concrete Reservoirs

Without Forms

—BY—

The Cement Gun

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Something new in reinforced-concrete work is the construction of reservoirs and tanks by means of the cement gun without the use of forms. The steel reinforcement is first erected in the form of a self-supporting frame or cage of angles and bars, with the required amount of spiral reinforcing bars (with hooked ends) securely fastened in place. Over this frame is placed a heavy wire netting of triangular mesh, which serves chiefly to hold the concrete in place while setting, but also forms additional reinforcement.

When this entire steel structure is erected, heavy canvas or ducking is stretched over the outside, and upon this (working from the interior) a layer of concrete 1 to 1½ in. thick is applied by means of the cement gun. When this layer has set for a short time, the canvas is removed; and additional layers of dense concrete are applied from both the interior and the exterior. In this way the walls are built up to the desired thickness; and as each layer is applied before the previous one has set, the result is a thoroughly homogeneous concrete mass.

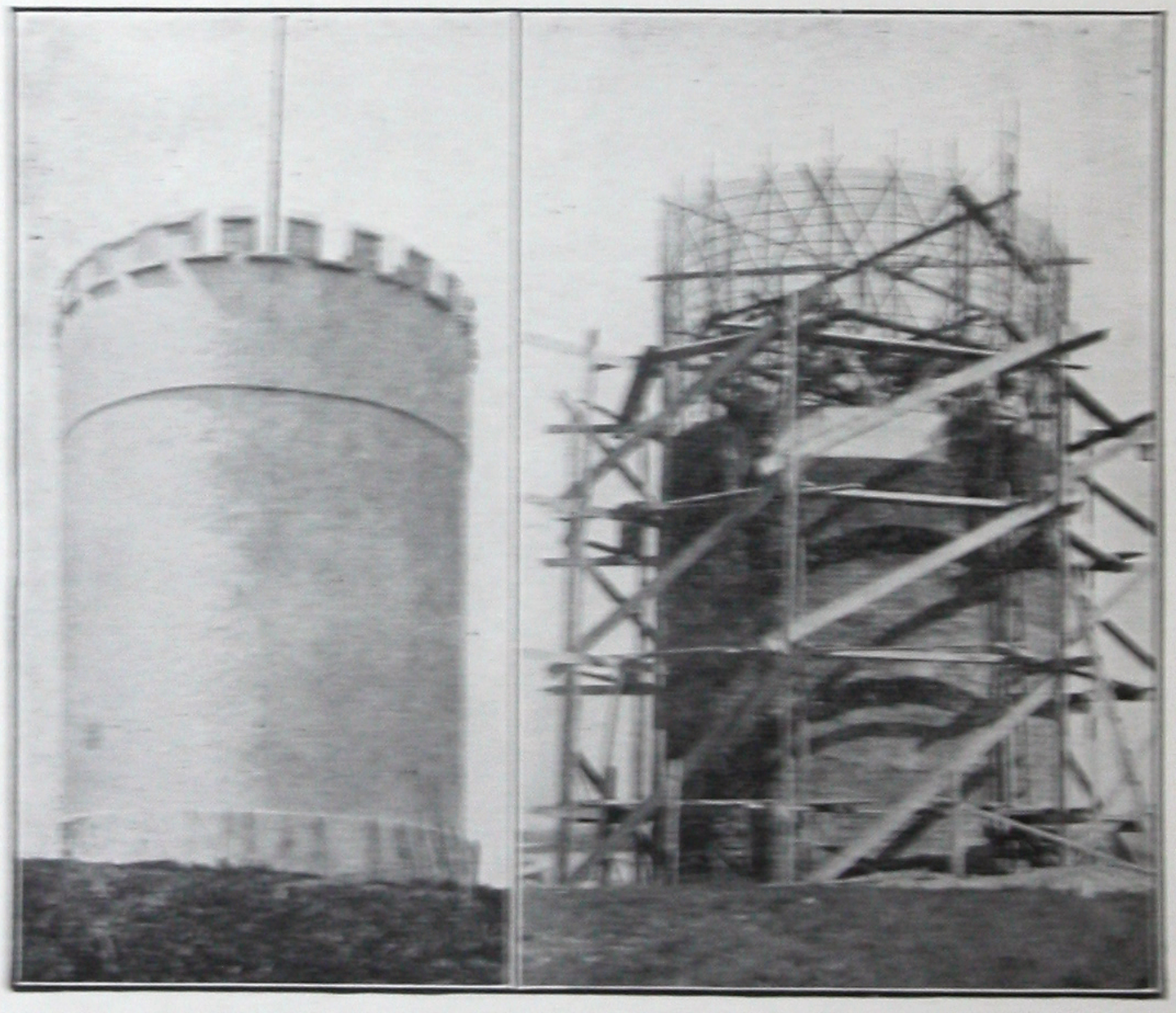
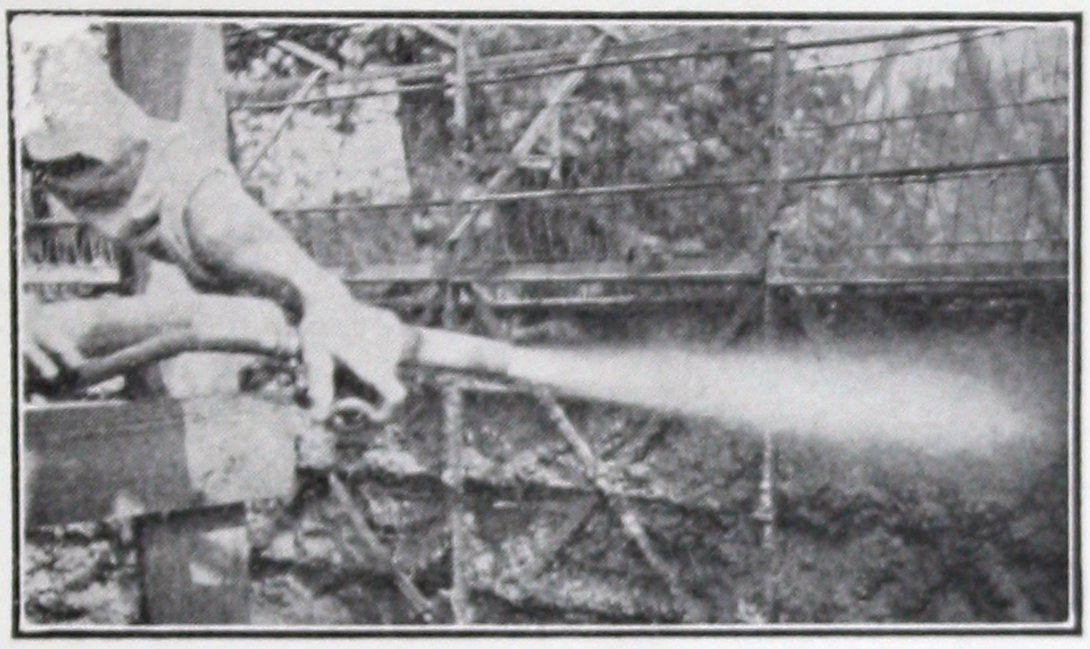


FIG. 1. REINFORCED-CONCRETE WATER TOWER BUILT WITHOUT THE USE OF FORMS, AT CARY, ILL.

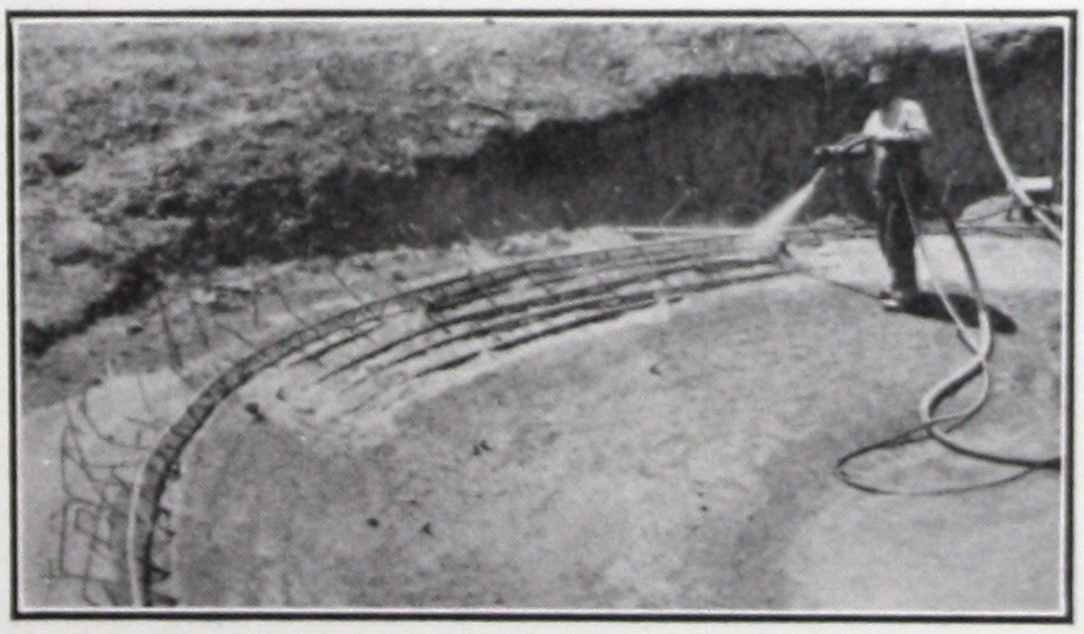
The roof is built in the same way. The surface is finished by floating.

The first structure of this type was built at Cary, Ill., in 1912. This is shown in Fig: 1. It is 18x32 ft. A larger reservoir built at Elmhurst, Ill., is illustrated in Fig. 2. This is 36 ft. in diameter and 22 ft. high, with a 6-in. wall, but the lower portion is below the ground. The work was done by the Dewey Cement Gun Co., of Chicago. Harry L. Emerson, of Chicago, is consulting engineer for the Elmhurst waterworks.



BUILDING UP FIRST COAT FOR INSIDE

One advantage claimed for this type of construction is the reduced cost due to the elimination of formwork. It also produces a very dense concrete and a very tight structure obviating the use of special compounds in the concrete or placing a waterproof lining. One of the features of the work is that cornices of various forms can be built by an expert operator with the nozzle. These are struck off to true lines by means of a sweep and may be left in the rough, or finished to a troweled or floated surface. Successful results in the density and monolithic character of the concrete, and also in the appearance of the structure, depend considerably upon the skill of the operator handling the cement gun.



EVEN THE FOUNDATION IS SHOT IN

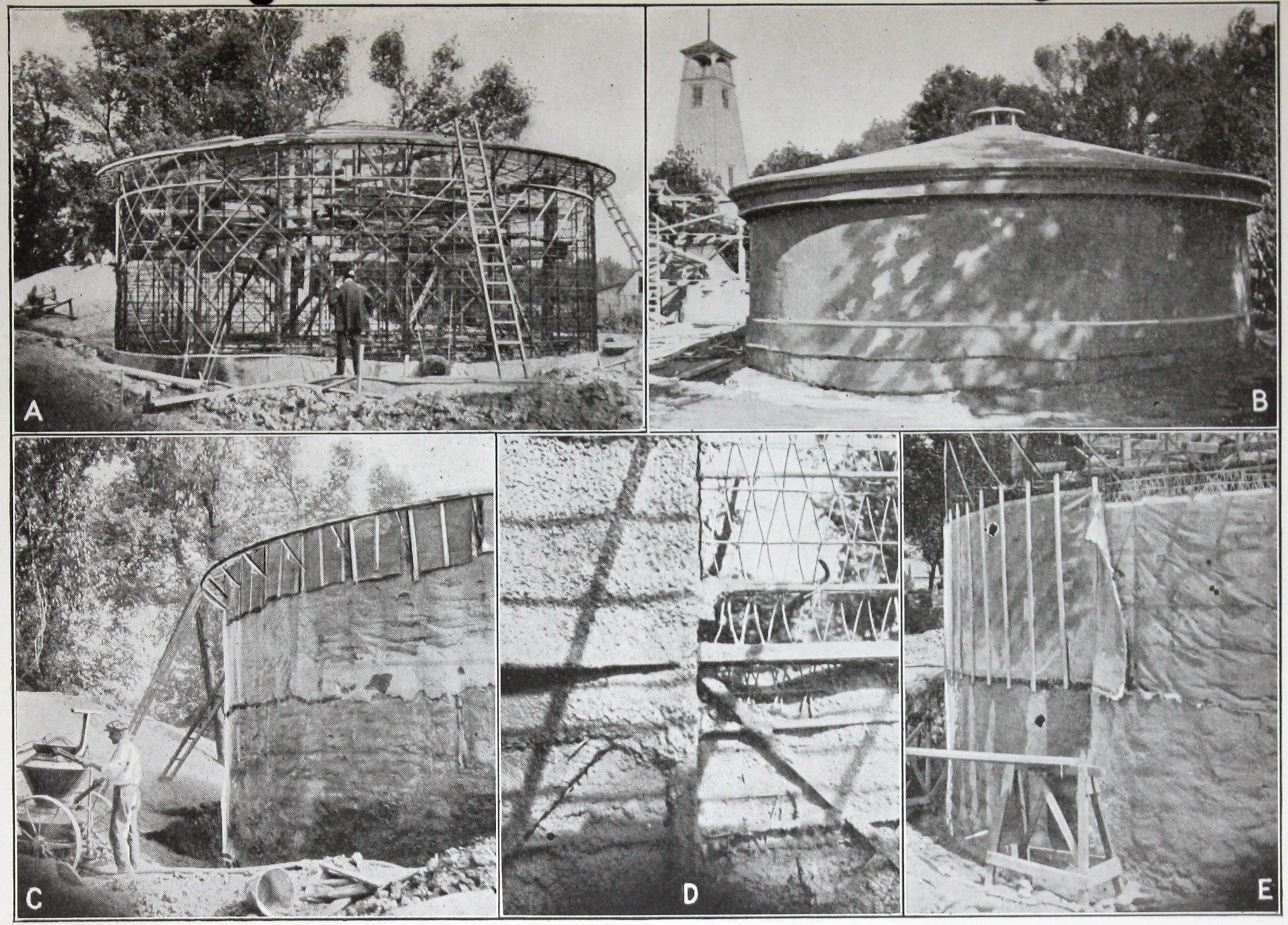


Fig. 2. Building a Reinforced-Concrete Water Tank by the Cement Gun Without Using Forms; Elmhurst, Ill.

A—The steel reinforcement erected in advance of the concreting. B—The finished structure (only the upper part is above ground). C—Exterior of rough concrete. D—Building up the concrete on the steel. E—Lower course of rough concrete, with canvas in place at the left for the next course above.

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